

# REPORT DOCUMENTATION PAGE

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302, and to the Office of Management and Budget, Paperwork Project Director, Washington, DC 20503.

1. AGENCY USE ONLY (Leave Blank)	2. REPORT DATE 15-Jul-99	3. REPORT TYPE AND DATES COVERED Monthly Progress Report
4. TITLE AND SUBTITLE  Contractor's Progress, Status and Management Report Monthly Progress Report		5. FUNDING NUMBERS  Contract N00421-97-C-1293/P3
6. AUTHOR(S)  Steven Case		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  ViA Inc. 11 Bridge Square Northfield, MN 55057		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) & ADDRESS(ES) Charles D. Caposell Code 4.0T Naval Air Systems Command Building 2185, Ste 1190 22347 Cedar Point Rd. Unit #6 Patuxent River, MD 20670-1161		10. SPONSORING/MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES		
12a. DISTRIBUTION/AVAILABILITY STATEMENT <b>DISTRIBUTION STATEMENT A</b> Approved for Public Release Distribution Unlimited		12b. DISTRIBUTION CODE
13. ABSTRACT (Maximum 200 words)  Monthly Report #15		
14. SUBJECT TERMS		15. NUMBER OF PAGES
17. SECURITY CLASSIFICATION OF REPORT Unclassified		16. PRICE CODE
18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified		19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified
20. LIMITATION OF ABSTRACT		

**DTIC QUALITY INSPECTED 2**

Standard Form (298)

# **Contractor's Progress, Status and Management Report -- Monthly Progress Report**

**Period Covered by the Report  
1 June through 30 June 1999**

Date of Report: 15 July 1999

Wrist Interactive Device for Wearable PC  
SBIR Phase II Topic N95-137  
Contract No. N00421-97-C-1293  
Dollar Value \$1,708,653

ViA Inc.  
11 Bridge Square  
Northfield, MN 55057

Sponsor  
Charles D. Caposell  
Naval Air Systems Command  
AIR-4.5T

Data Item No. 003  
Contract Reference Item 0003  
Authority - Data Acquisition Documentation No. DI-MGMT-80227  
Monthly Report No. 15  
Issuing Government Activity  
Requiring Office AIR-4.0T

Security Classification - Unclassified

19990804 166

## 1. Progress & Plans

The design, fabrication, and assembly of the WID101 boards (i.e. the second revision StrongARM boards) is now complete. We encountered a few delays caused by silly issues such as receiving the wrong flash components from Intel (the outside package was correct, but the parts inside were not). These boards are of the appropriate X- and Y-dimension to allow them to be mounted behind the highly-reflection 8.3" hand-held display..

Checkout and debug of the boards has begun. We have RAM, CPU, and serial ports operational. So far we are very pleased with the low number of errors that have been discovered.

New firmware for the Xetron radio was received and successfully programmed into the Atmel processor. This firmware has addressed the high rate of bit errors that had been encountered with previous boards. Prior to this modification and some additional optimization of system parameters, we were encountering extremely high rates of single-bit errors. At this point, the boards are performing adequately. We will continue to work with these boards to allow us to optimize overall system architecture. We continue to plan an eventual migration to Bluetooth once appropriate components become available. In the meantime, we will also plan to migrate to Xetron's ASIC as a risk mitigation.

We continue to work with Ericson and Symbionics to obtain access to development boards and chipsets for the Ericsson Bluetooth Radio. Symbionics has slipped the delivery schedule to mid July, although we expect to be informed of additional delays.

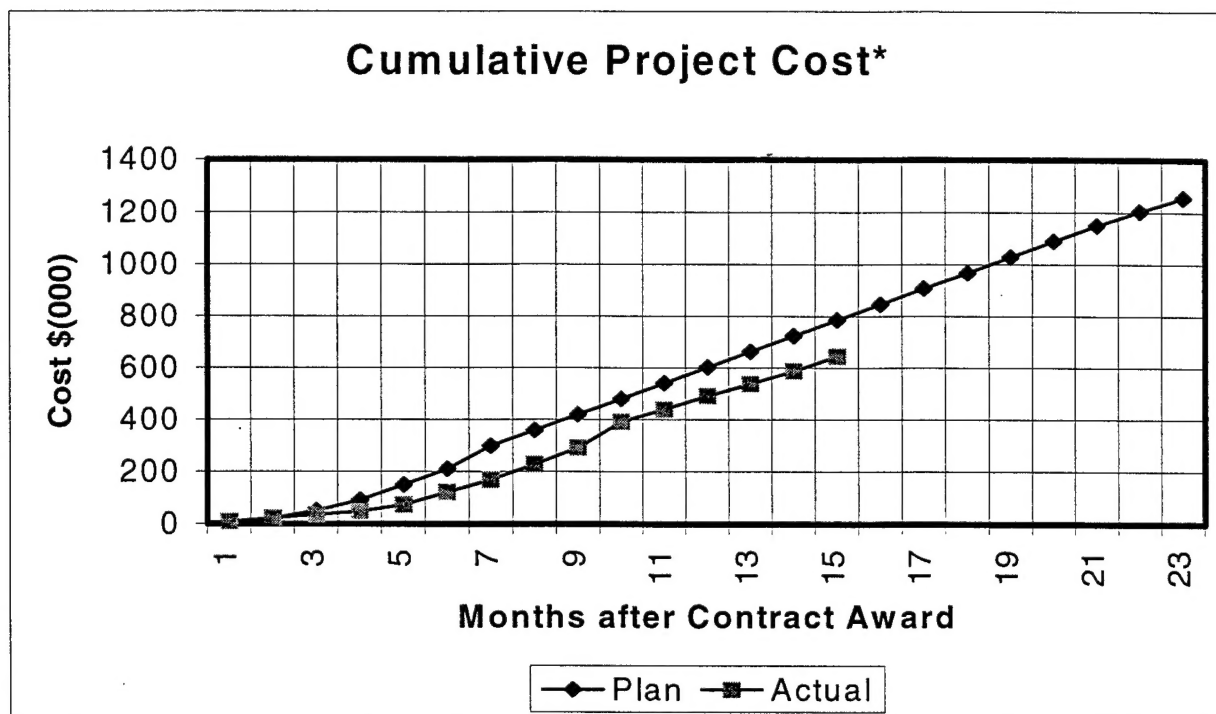
We continue to work the development of the audio firmware for the DSP. We await delivery of the simulator to support debug. We also are continuing negotiations with Lernout & Hauspie on access to their noise cancellation algorithms.

The revised optics designs are progressing on schedule. We have begun optimizations on the optic design based on the Colorado Micro Display product (CMD). We have also begun optimizing the electronics design in order to incorporate the CMD ASIC once it is available. We expect to use the direct memory interface to the display's frame buffer, thus allowing us to disable (or leave unpowered) the display logic on the StrongARM. The expectation is that this will result in additional power savings and improved battery performance.

We have identified an existing open source application that can be used to control remote computers. This application is interesting because it provides a significantly similar capability as the distributed video and audio drivers that we have been developing. The application is called VNC and has been developed by researchers at AT&T in the United Kingdom. We are evaluating the application to determine if it is a viable replacement for the ViA developed drivers. If not, perhaps it will provide us with ideas on how to increase performance of the system. Unfortunately, the design does require +/- 12V, which will cause additional inefficiencies in the power supply.

We continue to work with the University of Minnesota to incorporate their battery technology into the design. We are presently working with the University to optimize our use of their charging/discharging circuit. A few issues remain to be resolved. In the meantime, we are also reviewing reference design from National Semiconductor. The National designs will serve to mitigate risk should we not succeed at using the University's solution.

## 2. Project Cost



\*w/o G&A and fee

Cost incurred for the period and total cost which does not include G&A and Fee.

Current Month's Cost*	Cumulative Cost
\$57,311	\$645,305

\* Current month cost is 1 June through 30 June.

Person-hours for the period and cumulatively.

Current Month's Hours	Cumulative Hours
805.00	10,188.30

## 3. Schedule and Staffing

Eric Bie has joined the team to work on the DSP code for the audio encoding/decoding. Bill Meuleners will be joining the team in July to assist in the mechanical design activities.

We are assuming that the next TIM will be held in September after Kathleen Griggs returns from her maternity leave.

## 4. Author

Steven Case  
ViA Inc.  
11 Bridge Square  
Northfield, MN 55057

(507) 663-1399  
(507) 663-1899 (fax)

## **CDRL Distribution List and Addresses**

Commander  
Naval Air Systems Command  
Attn: Mr. Charles Caposell, Code 4.0T  
Building 2185, Suite 1190  
22347 Cedar Point Rd., Unit #6  
Patuxent River, MD 20670-1161

Office of Special Technology  
Attn: Kathleen Griggs  
10530 Riverview Rd.  
Fort Washington, MD 20744

Commander, Naval Air Systems Command  
Attn: Technical Library, Code AIR-4.0C1  
Building 2185  
22347 Cedar Point Rd., Unit #6  
Patuxent River, MD 20670-1161

Director  
Defense Advanced Research Projects Agency / ETO  
Attn: E.C. Urban  
3701 North Fairfax Dr.  
Arlington, VA 22203-1714

Defense Technical Information Center  
Attn: DTIC-User Services  
8725 Kingman Rd  
Fort Belvoir, VA 22060-6218